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The selection of social comparison standards is traditionally assumed to be guided by similarity between the self and the comparison standard. Despite the theoretical and empirical prominence of this similarity hypothesis, however, relatively little is known about the determinants of similarity in standard selection. To remedy this shortcoming we apply recent insights into the role structural alignment—a process of aligning interconnected relational structures of attributes—plays in similarity comparisons to the realm of social comparison. We propose that similarity in relational structures between individual attributes of the target and the standard critically determine which standard is selected for comparison. Consistent with this assumption, Studies 1 and 2 show that inducing a specific relational structure in participants' accessible self-knowledge leads them to select social comparison standards with similar structures. In addition, Study 3 suggests that similarity in relational structures may be a stronger determinant of standard selection than similarity in isolated features. We suggest that a consideration of structural alignment processes may lead to new insights in social comparison theory.

Keywords: structure mapping, standard selection, similarity hypothesis, social comparision.

In our daily routines we constantly compare our own outcomes and abilities with those of others (e.g., Foddy & Crundall, 1993; Gilbert, Giesler, & Morris,

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1995; Wheeler & Miyake, 1992). Oftentimes, such social comparisons (Festinger, 1954) provide valuable information about the self that allows us to understand and predict our behavior. As is true for obtaining helpful information in other problem domains, however, acquiring self-knowledge via social comparisons is a complex task. Social comparisons are inherently multi-faceted and involve a series of selection processes. With whom should one compare, for example? For most domains a virtually endless number of social comparison standards exists. Assume, for example, you were to evaluate your athletic abilities. Should you select your best friend, your spouse, your four-year old niece, or a professional athlete as a comparison standard?[1]

1. Similarity in Social Comparison

Social comparison theory and research has traditionally assumed that similarity to the comparison standard plays an important role in social comparison processes. Normative theoretical accounts of how to obtain diagnostic information via social comparison (e.g., Festinger, 1954; Goethals & Darley, 1977; Wheeler, Martin, & Suls, 1997) have acknowledged the value of comparisons with standards who are similar on the critical dimension itself (Festinger, 1954) or on attributes that are related to this dimension (Goethals & Darley, 1977). When evaluating one's own athletic abilities, for example, it may thus be helpful to compare with others who are either similar to oneself on the critical dimension (e.g., similarly athletic), or similar on other dimensions related to the critical dimension (e.g., similar age). In a nutshell, most theories assume that in order to obtain diagnostic information, people should not compare the proverbial apples and oranges.

Empirical evidence generally confirms the central role ascribed to similarity by these theoretical formulations. Both types of similarity—similarity along a critical dimension and similarity on related dimensions—appear to exert powerful effects on the selection of social comparison standards. For example, participants who receive feedback about their performance in a given task and

[1] Here the term "comparison standard" does not necessarily refer to an ideal model, but simply to any person one chooses to compare oneself to.

are given the opportunity to see the scores of other participants tend to select comparison standards with similar performance (e.g., Gruder, 1971; Wheeler, 1966), thus demonstrating that similarity on the critical dimension itself influences standard selection. Similarity on related attributes has also been shown to be important in standard selection (C.T. Miller, 1982; Suls, Gastorf, & Lawhon, 1978; Zanna, Goethals, & Hill, 1975, Wheeler, Koestner, & Driver, 1982). For example, participants have been found to compare their own task performance to others who had similar practice on the task in cases in which practice was related to performance, but not when it was unrelated (Wheeler et al., 1982). These findings suggest that similarity does indeed play an important role in standard selection, as originally proposed by Festinger (1954) and Goethals and Darley (1977). Indeed, Festinger's similarity hypothesis has often been seen as the core proposition of social comparison theory (e.g. Wood, 1989).

In marked contrast to this prominent theoretical and empirical role of similarity, however, stands the striking vagueness of its theoretical conceptualization. With the exception of the broad distinction between similarity on the critical dimension and similarity on related attributes (Goethals & Darley, 1977), little attention has been paid to the determinants of similarity in social comparison, or to the psychological processes that determine perceived similarity to a social comparison standard or to what kinds of similarity matters in selecting a standard (for a discussion of additional weaknesses, see D. T. Miller & Prentice, 1996). Thus, in spite of its central role in social comparison theory and research, the notion of similarity remains vague and ill-defined. What determines whether participants see themselves as similar or dissimilar to a given standard—on the critical dimension itself as well as on surrounding attributes? What are the cognitive processes that underlie such judgments, and how do they influence social comparison processes? We suggest that structure-mapping theory (e.g., Gentner, 1983; Gentner & Markman, 1994, 1997; Markman & Gentner, 1993, 1996, 2006; Medin, Goldstone, & Gentner, 1993) can help reveal the processes underlying social comparison.

2. Structure-mapping and Similarity

Similarity is a central process in human psychology. The seminal work of Shepard (1974) and Tversky (1977) form the starting-point for this research. For example, in Tversky's contrast model, similarity judgments involve a process of matching the features of the target and the comparison standard and weighing the resulting number of shared and unshared features. The more shared features and the fewer unshared features exist, the higher the judged similarity.

More recent conceptualizations, however, have moved beyond this original focus on individual features and emphasize the importance of relational structures that hold among those features (e.g., Gentner, 1983; Gentner & Kurtz, 2006; Gentner & Markman, 1994, 1997, 2006; Goldstone, 1994; Holyoak & Thagard, 1989, 1995; Markman & Gentner, 1993, 1996; Medin, Goldstone & Gentner, 1993). The basic assumption of the structure-mapping theory is that in comparing two objects, people are influenced not merely by sets of separate features, but also by how the features are related to one another, by what structure they form. For example, if participants compare two cross-mapped[2] figures (Gentner & Toupin, 1986; Ross, 1987) such as (a) and (b), they are not only guided by the individual objects (the O's, X's and V's), but also by how these individual objects relate to one another.

a) XOOXXOOX
b) OVVOOVVO

Even though the O's in (a) locally match the O's in (b), people typically prefer to match the O's with the V's, because this correspondence preserves the relational match. There is considerable evidence that people's sense of similarity is influenced by common relational structure. For example, people rate two passages as more similar if they depict the same causal plot than if

[2] Gentner & Toupin (1986) define a cross-mapping as a match in which the salient object-level matches conflict with the optimal alignment of relational structure.

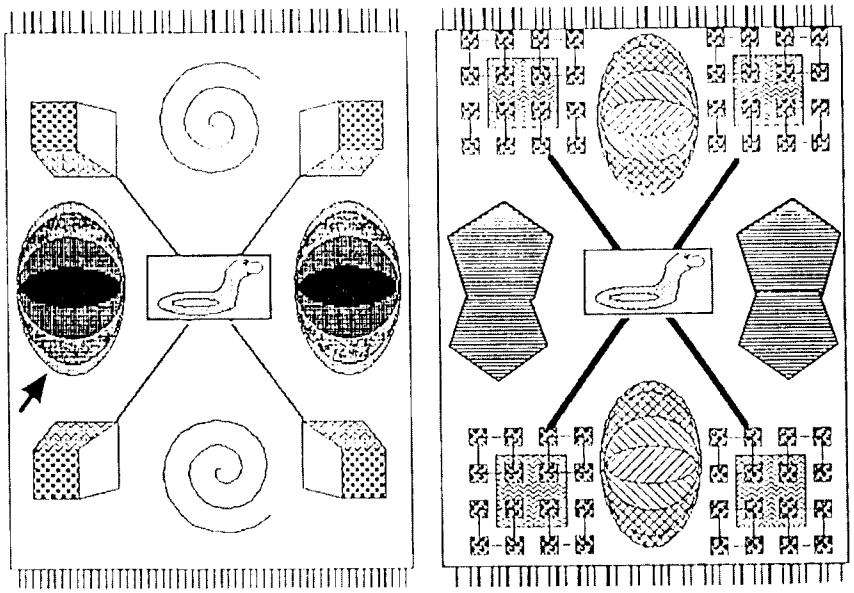

Fig. 1. An illustration of relational versus featural similarity taken from Markman and Gentner (1993). The target object (left oval) in the left rug is featurally similar to the top or bottom oval on the right rug and relationally similar to the left octagon on the left rug. Reprinted with permission.

they merely contain the same kinds of characters and objects (Catrambone, 2002; Gentner, Rattermann & Forbus, 1993). Further, inferences from a similarity statement typically involve properties that are related to the common relational structure (Clement & Gentner, 1991; Gentner & Markman, 2006; for a process model, see Falkenhainer, Forbus, & Gentner, 1989; Forbus, Gentner, & Law, 1995). From this perspective, the impact of individual features on similarity judgments critically depends on their role in the overall shared structure.

The central role relational structures play in similarity comparisons is illustrated by a study (Markman & Gentner, 1993) in which participants compared pictures of rugs in a perceptual matching task. Each rug contained a number of different objects (e.g., an octagon and an oval) that were arranged in a symmetry relation (see Figure 1). The target and the standard of the comparison always shared a similar relational configuration. Participants' task

was to identify the object on the standard rug that corresponded to a specific target object (e.g., an oval in the middle of the left side) on the target rug. The rug pairs were constructed such that for each target object there were two possible matches in the standard: an object match and a structural match. The object match was a highly similar object (i.e., another oval) that appeared in a different position (and in a different relational role) on the standard rug. The structural match was a different object (an octagon) that appeared in the same position (and in the same relational role) as the target object (e.g., in the middle of the left side, as part of a vertically symmetric pattern). Participants were free to choose whichever match they preferred, and when simply asked to "point to the thing that goes with this one" they sometimes chose the object match. However, when another group of participants was first asked to rate the similarity of all the rug pairs (thus ensuring that they carried out a comparison), they were more likely to choose the structural match: that is, to choose the different-shaped object that appeared in the same relational role. These and other findings indicate that structural correspondences play an important role in similarity comparison[3] (e.g., Gentner, Rattermann & Forbus, 1991; Holyoak & Koh, 1987; Medin, Goldstone & Gentner, 1993; for an overview, see Gentner & Markman, 1997).

These findings show, first, that shared relational structure plays an important role in similarity comparisons; and, second, that relational commonalities are not the only determinants of similarity. People also attend to common object features. Gentner (1983; Gentner & Markman, 1997) distinguishes different classes of similarity based on the mix of relational commonalities and featural commonalities. An *analogy* is a comparison that has a strong match in relational structure, but few matching features (e.g., *Termite colonies are like cities*); a *literal similarity match* is one in which both relations and features match (e.g., *Termite colonies are like ant colonies*); a *surface* (or *mere-appearance*) *match* is one with many featural matches but few relational matches (e.g., *Termite mounds are like small mountains*). Both analogy and literal similarity provide a good basis for drawing inferences and finding

[3] Indeed, the importance of aligning the overall structure in a comparison is consistent with many aspects of Gestalt theory (e.g., Goldmeier, 1972).

common structure, although they have different advantages: Literal similarity matches are much easier to retrieve from memory than analogical matches (Gentner & Landers, 1985; Gentner, Rattermann & Forbus, 1993; Holyoak & Koh, 1987; Keane, 1988; Ross, 1989); but analogical comparison allows a greater degree of relational abstraction. Of course, these distinctions are really the endpoints of continuous gradations. For example, when we compare ourselves to another person, the mix of relational commonalities and featural commonalities can vary from a highly analogical match to a close featural match, as we explore later in this paper.

Indeed, in everyday comparisons, relational overlap and featural overlap often go hand in hand, so that a target and a given standard will share both individual features and the relational structure among those features. When this is not the case, however, it is important to consider under what conditions shared features vs. shared structures will carry more weight in similarity comparison. The answer to this question is closely tied to the psychological processes that underlie similarity comparison.

One determinant of whether similarity comparisons will be based on features vs. structures is the degree and kind of background knowledge about the items being compared. The ability to make relational comparisons is dependent on knowledge of the relevant domain relations (Gentner & Rattermann, 1991). For example, young children tend to focus on common object features, interpreting "A plant stem is like a drinking straw" to mean that both are long and thin; older children and adults interpret the same comparison in terms of common relations, such as that both bring nutrients to a living thing (Gentner, 1988). In general, the richer a person's knowledge about a comparison domain, the more likely he or she is to engage in structure-based comparisons. In line with this assumption, it has been demonstrated that adults who are novices in physics tend to sort examples by common features, whereas people with greater knowledge tend to sort by common relational structure (Chi, Feltovich & Glaser, 1981). Further, Novick (1988) found that novices in mathematics tended to transfer solutions according to surface featural similarity between the critical problem and subsequent problems, while experts were more likely to transfer by common relations. These findings suggest that the relative weight of individual features versus relational structures in a similarity comparison depends greatly on the degree of

background knowledge a person has in the domain.

Taken together, these dependencies imply that similarities in relational structures are likely to play a particularly influential role in comparison (a) in domains in which people have rich background knowledge; and (b) in domains where people want to make further inferences from the observed commonalities. Social comparisons fulfill this condition. They often involve the self — a richly represented cognitive structure — as a comparison target (Kihlstrom & Cantor, 1984) and often pertain to important questions of person judgment (e.g., Am I as intelligent as the standard person?). People typically have rich belief systems concerning the comparison domain. Further, because social comparisons allow people to obtain valuable and diagnostic information about themselves (Festinger, 1954), people are often willing to allocate substantial processing capacities in this activity. Thus it is reasonable to hypothesize that structural similarities may play an important role in social comparison.

3. Structure-mapping in Social Comparison

One way in which social comparison is likely to be influenced by structure-mapping is in the selection of a social comparison standard. As discussed earlier, social comparison theory has typically assumed that we tend to compare ourselves with those who are similar to us. Given the evidence that structural alignment processes play an important role in the process of determining similarity, they may influence the perceived similarity of the standard of a comparison to the target (the self) (Lockwood & Kunda, 1997). If so, people should prefer comparison standards with whom they share a relational structure, just as they consider two plots (Gentner, Rattermann & Forbus, 1993), two sentences (Gentner & Kurtz, 2006), or two perceptual figures (Goldstone, Medin & Gentner 1991; Markman & Gentner, 1993) more similar when they share relational structure. A person whose individual features are related to one another in a consistent fashion (e.g., a person who is intelligent and also successful), for example, and who is thus characterized by a structure of consistency, may be particularly inclined to select a standard who shows a similar structure of consistency (e.g., a person who is athletic and health-conscious), even if these consistencies are formed by different individual features.

This possibility is consistent with Thagard and Kunda's (1998) suggestion that people engaging in social comparison may be influenced by matching analogical structures between themselves and the comparison standard. Recent research also provides suggestive evidence for the role of structure mapping in social comparison. Specifically, it has been demonstrated that for social comparisons to affect self-evaluation, people have to draw an analogy between themselves and the comparison standard (Lockwood, 2002). More specifically, downward social comparisons (i.e. comparisons with others who do worse on a given dimension) were found to primarily influence subsequent self-evaluations if participants were explicitly induced to draw an analogy between themselves and the social comparison standard by asking them to think about how they might become like the standard (Lockwood, 2002; Lockwood & Kunda, 1997). To the extent that forming such analogies involves a matching of relational structures (Gentner, 1983; Gentner & Markman, 1994, 2006), this research suggests a role for structure-mapping in social comparison.

One important question in social comparison is which specific relational structure is going to become influential in target selection. For a mental representation as complex and multifaceted as the self (Kihlstrom & Cantor, 1984), a host of different relational structures is likely to exist. Thus, structural alignments may be established with many different comparison standards. For example, a person may have a well-developed structure of *consistency of behavior* in some self-aspects — that is, one that is characterized by features that are consistent with one another (e.g., the person is athletic and health conscious). The same person, however, may also be characterized by inconsistency in other respects (e.g., the person is active in environmental protection but also loves driving his or her SUV). Conceivably, such a person could establish a structural match with a consistent as well as an inconsistent comparison standard. Which of these alternative comparison standards is this person likely to select for comparison? One factor will be the contextual relevance of the specific features. Another is whether the common structure is systematic: that is, whether it interlinks the visible relations and features into a connected structure. Research on structural alignment suggests that the structure that connects many individual features is likely to be most influential (Falkenhainer, Forbus, & Gentner, 1989; Gentner, 1993). Gentner (1983)

proposed that one reason people prefer connected structure is that they allow prediction of future likely outcomes. For example, if you are like someone else in deep causal connections, then you will probably find their choice of action more relevant in thinking about your own choices. Thus, in a situation in which different structures are shared with different standards, the standard whose shared structure interconnects most individual features is likely to be selected. For example, if an overall structure of *consistency in behavior* interconnects more individual features in the target and the standard than the structure of *inconsistency in behavior*, then the consistent standard will be selected.

In sum, this reasoning suggests that one influence on standard selection may be shared relational structure, which may guide people to select as social comparison standards those who are structurally similar to them. In the present paper, we test some predictions of this hypothesis.

4. The Present Research

To do so, we will apply different methods to manipulate structural alignment between the comparison target (e.g., the self) and the potential comparison standards. Studies 1 and 2 directly manipulate structural alignment between the target and the potential comparison standards with the help of a priming task. Prior to selecting a comparison standard, participants engage in a self-description task that induces them to structure self-knowledge in one of two alternative ways (Higgins, 1996). The subsequent social comparison task then provides them with a choice between standards that are also characterized by one of these alternative structures. If structural similarity between the self and the standard influence standard selection, then participants should select the standard that is characterized by the same structure that has previously been highlighted in their self-knowledge.

The final study further extends the first two studies in two important ways. First, it examines the potency of structural influences on standard selection by pitting similarity of alignable structures against similarity of individual features. Second, it extends the usual paradigm of self-other comparisons by looking at standard selection in other-other comparisons.

5. Study 1

If standard selection in social comparison is indeed influenced by similarity in relational structures, then people should select comparison standards with whom they share an important relational structure. Study 1 was designed to examine this possibility. To do so, we developed a priming task aimed at inducing participants to organize and structure self-knowledge in a particular way. Before engaging in standard selection, participants filled out a self-description questionnaire, designed so that participants reported their individual characteristics either in a structured or in an unstructured way. More specifically, one half of our participants was induced to report individual characteristics as pairs of contrastive, inconsistent features (e.g., 'On the one hand I am shy, but on the other hand I am also assertive'). The idea was to invite people to access their self-knowledge in such a way as to lead to a structure of inconsistency. The prediction is that people primed with a structure of contrast and inconsistency should select a standard whose features show a similar structure. The other half of our participants was induced to report their characteristics in an isolated and unconnected manner (e.g., 'I am shy. I am assertive.'), so that in them no particular structure was primed. Thus, this group should tend to select neutral (unstructured) comparison standards over comparison standards displaying a structure of inconsistency.

In designing the study, we were concerned to rule out an alternate explanation for our predicted pattern. Participants in the inconsistent structure condition might simply summarize the pattern with a single abstract feature: e.g. "inconsistency," and then choose a standard simply on the basis of this single feature.[4] To demonstrate that the expected selection effect is indeed driven by the structural qualities of accessible knowledge, and not by a single global feature, we added a third standard, that was like the no structure standard except that it also had an added prominent feature of "inconsistency." If participants are simply choosing on the basis of a global descriptor, then

[4] Note that it is not a difficulty for our position if participants add an abstract descriptor such as "inconsistent", but only if they use this global descriptor without further access to the relational structure it summarizes.

those in whom a structure of inconsistency has been primed should be at least equally likely to choose the standard with the feature "inconsistency" as the standard displaying a structure of inconsistency. However, if the structural relations among the given features drive the expected selection effect, then participants primed with a structure of inconsistency should primarily select a standard characterized by a structure of inconsistency, rather than one characterized simply by the global "inconsistency" feature.

5.1. Method

Participants. We recruited 29 male and female students at the University of Würzburg as participants. They were approached in the university cafeteria and asked to take part in a series of brief independent studies and were offered a chocolate bar as a compensation. Upon agreement participants were led to a separate room.

Materials. We constructed three standard descriptions (see Appendix A). The Inconsistency Standard was described by pairs of characteristics that were inconsistent with one another: e.g., Verena (Tobias) wants to finish her studies as soon as possible; but she also likes to dawdle and to pursue a variety of interests. The No Structure standard was described by single characteristics that were not organized in relation to one another: e.g., Simone (Simon) likes to do sports in her spare time; and her apartment is cozy. The second Global Label standard was similar to the No Structure standard, except for the added information that her friends think that she has a rather inconsistent character.

Procedure and Design. Participants were run in separate booths. They were told that the experimental session consisted of two unrelated studies and received two folders with the experimental materials and were asked to work through them in the given order.

The first folder included our structure priming manipulation. Participants were informed that this first study attempted to compare different types of self-descriptions, were given an example of a self-description and were instructed to describe themselves in a similar fashion. For one half of our participants (no structure condition) this example consisted of two unconnected characteristics ('I am chaotic. I am athletic') and was followed by 12 unconnected blank self-descriptions starting with 'I am' ('I am ____'). Participants in the no structure condition were thus induced to describe themselves with 12 unconnected characteristics. For the other half of our participants (inconsistent structure condition), the example consisted of two contrasting characteristics ('On the one hand I am shy, but on the other hand I am also assertive.'). This example was followed by 6 blank self-descriptions each to be completed with two characteristics that were inconsistent with one another ('On the one hand I am _____, but on the other hand I am also_____.'). Participants in the inconsistent structure condition were thus induced to describe themselves by a total of 12 characteristics that were arranged in 6 pairs of 2 contrasting characteristics.

The second folder included the standard selection task which was printed in a different font to emphasize its unrelatedness with the structure priming task. The instructions pointed out that this study was concerned with how people use information about others to evaluate themselves. Participants were informed that in this study, they would work on a series of personality and attitude tasks. Before getting to the actual tasks, they would have the opportunity to receive additional information about one other person who had previously engaged in these tasks, which could help them in working on the tasks themselves. Participants were further informed that they would see brief descriptions of three persons and could choose the one whom they expected to be most informative for their self-evaluation (for a similar procedure, see Wheeler et al., 1969). Participants were then provided with the descriptions of the no structure, inconsistent structure and global label standards whose gender was matched with theirs and indicated which person they wanted to receive additional information about.

After they indicated their choice, the experimenter informed participants that they would not actually have to work on these tasks, and explained that the purpose of the study was to examine which standard participants would choose. Finally, participants received a questionnaire assessing whether they were aware of a connection between the initial self description task and the standard-selection task. None of the participants was aware of the actual connection.

5.2. Results

We expected that standard selection would be influenced by whether or not an alignable structure was activated in participants during the priming task. The results, shown in Table 1, are consistent with these predictions. As expected,

Table 1. Number of Standard Choices by Standard and Structure (Study 1)

Standard	Inconsistent Structure	
	Activated	Not activated
No structure	2	7
Inconsistent structure	7	2
Inconsistent label	4	7

participants for whom a structure of inconsistency had been primed tended to select the inconsistent structure standard. They showed no tendency to choose the inconsistent label standard relative to the no structure group, suggesting that they responded to the structure of inconsistency, and not simply to an additional feature. Participants for whom no structure had been primed, however, tended to select either of the two unstructured standards (the no structure or the inconsistent label standard), significant by a Chi-Square analysis over the number of choices for the respective standards, $\chi^2(1, \underline{N} = 29) = 6.13$, $\underline{p} < .05$, *Cramer's V* = .46. An analysis of the adjusted standardized residuals for each cell reveals that this pattern is primarily driven by the cells representing selections of the inconsistent structure standard in the structure activated (adjusted standardized residual = 2.4) and structure not activated (adjusted standardized residual = −2.4) conditions.

5.3. Discussion

These findings provide initial support for the hypothesis that standard selection in social comparison is guided by structural similarities. As expected, participants tended to choose the social standard for comparison whose structure among the individual features matched the structure that was introduced to their accessible self-knowledge in the priming task. Importantly, this pattern does not appear to be produced by similarity in specific features of the self and the standard. For one, our priming procedure manipulated structure in a content-free manner that was independent of individual features. Furthermore, standards who were characterized by an explicitly mentioned feature that corresponds to the critical structure ('an inconsistent person') but not by the structure itself were not preferentially selected. This suggests that the findings were driven by the common structural patterns between the accessible

self-knowledge and the standard descriptions.

These findings suggest a link between structural similarity and standard selection. However, the results leave open the possibility that participants simply prefer structured standards per se, regardless of the specific structure, rather than standards characterized by the same relational structure (e.g., inconsistency) as their own. Study 2 was designed to examine the specificity of the structure-selection link in social comparison.

6. Study 2

To do so, we extended the paradigm used in Study 1 and primed participants with two alternative structures. In particular, half of the participants were induced to report their characteristics in a way that induced a structure of inconsistency (e.g., 'On the one hand I am shy, but on the other hand I am also assertive') whereas the other half was induced to report self-knowledge in a way that induced a structure of consistency (e.g., 'I am intelligent, and therefore I am also successful'). Subsequently, participants could choose between one of four comparison standards, two that exhibited either of the alternative structures and two that were characterized by the corresponding features (i.e., inconsistent vs. consistent person) without exhibiting the structure. If the link between alignable structure and standard selection is specific and sensitive to the nature of the relational structure, then participants should select the comparison standard that shows the same structure which has been introduced to their accessible self-knowledge. Furthermore, the preceding results suggest that this preference should only exist for those standards that exhibit the critical structure, and not simply a feature representing the structure.

6.1. Method

Participants. We recruited 34 male and female students at the University of W?rzburg as participants. They were approached in the university cafeteria and asked to take part in a series of brief independent studies and were offered a chocolate bar as a compensation. Upon agreement participants were led to a separate room.

Materials. We constructed four standard descriptions (see Appendix B): a consistent and an inconsistent structure standard as well as a consistent and an

inconsistent label standard. For the consistent structure standard, the individual characteristics were arranged in pairs of two characteristics which are closely related. For example, it was pointed out that Astrid (Ulrich) is in principle ready to help others and as a consequence very generous with her friends. Similar to the materials used in Study 1, for the inconsistent structure standard, the individual characteristics were arranged in pairs of two characteristics that were inconsistent with one another. For example, it was pointed out that while Simone (Simon) cares a lot about the environment she is not willing to abandon her car. For the two remaining standards, the individual characteristics were mostly unconnected with one another, as was true for the no structure standard in Study 1. In addition, the description of the consistent label standard Martina (Martin) explicitly stated that she is often seen as a consistent person by her friends. The description of the inconsistent label standard, on the other hand, explicitly stated that Verena (Tobias) is often seen as a person who has a rather inconsistent character.

Procedure and design. With the exception of the structure priming manipulation the experimental procedures are identical to those described in Study 1. For about half of the participants, the structure priming task was identical to that in the inconsistent structure condition of Study 1. Thus, these participants were induced to describe themselves with 6 pairs of characteristics that are inconsistent with one another ('On the one hand I am _____, but on the other hand I am also_____.'). For the other half, a structure of consistency between individual characteristics was activated. In particular, these participants were provided with an example in which the second characteristic followed from the first ('I am intelligent and therefore I am also successful') and were instructed to describe themselves in six statements that included the same structure ('I am ____ and therefore I am also _____').

In the standard selection task, participants were then provided with the four different standards whose gender was matched with theirs and who were presented in a fixed order. After reporting their standard selection, participants answered a final questionnaire assessing their perceptions about a potential connection between both studies. None of the participants was aware of the actual connection. Participants were then debriefed, thanked for participation and offered their chocolate.

In sum, Study 2 is based on a single factor experimental design. The two

levels of the factor (inconsistent vs. consistent structure activated) were manipulated between participants.

6.2. Results

We expected that standard selection would depend on what structure among their individual characteristics was activated in participants. In particular, participants should select the standard whose characteristics were arranged in the structure that is similar to the structure that had been activated among their own characteristics. Furthermore, to the extent that these effects are driven by specific structures among individual characteristics rather than the corresponding feature ('I am a consistent/inconsistent person') the selection of the unstructured consistent and inconsistent label standards should remain uninfluenced by the structure priming manipulation.

The number of choices for the four different standards that are reported in Table 2 are consistent with this reasoning. In particular, the inconsistent structure standard was selected more often if a structure of inconsistency rather than consistency had been activated, whereas the consistent structure standard was selected more often if a structure of consistency rather than inconsistency had been primed, $\chi^2(1, \underline{N} = 25) = 7.3$, $\underline{p} < .01$. Choices for the consistent and inconsistent label standards, on the other hand, did not depend on the structure priming condition. This overall pattern proved to be significant in a Chi-Square analysis using the number of choices for the respective standards as the dependent variable, $\chi^2(3, \underline{N} = 34) = 7.5$, $\underline{p} < .05$, *Cramer's V* = .47. An analysis of the adjusted standardized residuals for each cell reveals that, as in Study 1, this pattern is primarily driven by the cells representing selections of the inconsistent structure standard in the two structure priming conditions

Table 2. Number of Standard Choices by Standard and Structure (Study 2)

Standard	Structure	
	Inconsistent	Consistent
Inconsistent structure	6	0
Consistent structure	7	12
Inconsistent label	3	4
Consistent label	1	1

(adjusted standardized residuals = 2.7 and –2.7 respectively).

6.3. Discussion

In line with our reasoning these findings demonstrate that participants tended to select social standards for comparison who specifically exhibited the same structure that had been induced to their accessible self-knowledge. As was true in Study 1, this preference only held for those comparison standards that were characterized by a corresponding consistent or inconsistent relational structure among the individual features, not for those who were simply labeled as consistent or inconsistent.

As is apparent from Table 2, there is also an overall tendency to select the consistent standard for comparison. In fact, 19 out of the 34 participants selected this standard. In retrospect, we suspect that people are inclined to see themselves as rather consistent characters, leading to a baseline preference for this type of standard. It is important to note, however, that this tendency is extraneous to our hypothesis, which predicts that the *relative preference* for standards with consistent (or inconsistent) structure will be influenced by whether a consistent (or inconsistent) structure was activated in participants' self-knowledge. From this perspective, the overall preference for consistent standards is best conceived of as a baseline against which differences due to our priming manipulation can be evaluated. Specifically, our inconsistency priming manipulation had to move participants away from their baseline preference for consistent standards. Indeed, as shown in Table 2, the inconsistent structure standard was selected more often by participants who were primed on inconsistency rather than consistency, whereas the consistent structure standard was selected more often by participants who were primed on consistency rather than inconsistency. This pattern is consistent with the claim that structural similarity plays a role in standard selection.

But how important is this role? How strong is the influence of structural similarity on standard selection? How does its influence compare with those of other factors that also determine with whom we compare? How does the influence of structural similarity compare to the influence of featural similarity, for example? Study 3 examines this question about the potency of structural similarity in standard selection.

7. Study 3

In particular, in our final study, we attempt to pit similarity in isolated features and similarity in interconnected relational structures against one another. The traditional research on standard selection (C.T. Miller, 1982; Wheeler, 1966) suggests that in general participants should prefer a standard with many isolated feature matches over one with few. However, if social comparison follows the same structure-mapping principles as have been found in cognitive settings, then we should find that participants' sense of similarity and causal predictiveness will be greatly increased if the standard and the comparison item share a higher-order relational structure that connects the local features. The addition of such an explicit connecting structure has been shown to influence analogical comparison in children (Gentner & Toupin, 1986) and adults (Clement & Gentner, 2001; Markman & Gentner, 1993; Wu & Gentner, 1998)

In Experiment 3, we carried out a strong test of the importance of structural similarity in social comparison. We gave participants a choice between a standard that shared a large number of specific features (but did not share a higher-order structure) and one that shared a higher-order relational structure (but differed in all the specific features). If participants choose on the basis of shared structure, rather than shared features, it will be strong evidence that shared relational structure matters in social comparison.

Participants were given a choice between two standards—one with whom the comparison target shared many isolated features and another with whom the target shared few. For half of the participants, an interconnecting structure was added to the 'low-feature-match' standard and for the other half no such structure was added. Participants were given the description of a target person as well as descriptions of two comparison standards.[5] They were given the

[5] Note that in order to distinguish between the effects of featural and structural similarity, we had to closely control the featural and structural match between the target and the standard of the comparison. Given the natural variability in self-concepts, this is difficult to achieve for comparisons that involve the self as the target. In the interest of methodological rigor, we thus resorted to comparisons with a

opportunity to select additional information about one of these standards that could help them to make a subsequent series of judgments about the target. One of the comparison standards (featural similarity) was described as very similar to the target person with respect to a series of salient isolated features that were not integrated into an interconnected structure. The other comparison standard (structural similarity) was described as being dissimilar with respect to virtually all of the individual features that were provided. For half of our participants, however, we increased the structural similarity between the target and the latter standard by introducing an alignable higher-order relational structure that provided a shared structure among many of the individual features on which target and standard differed. If our reasoning is correct, and structural similarity is a powerful determinant of standard selection, then (1) participants given a choice between a high featural match and a low-featural match should choose the high featural match a standard, consistent with previous accounts; but (2) if alignable higher-order structure is added to the low featural match, then participants should select the structure match as standard. If people choose many shared features over few, but still prefer a structural match over many shared features, then we will have strong evidence that shared higher-order structure is important in social comparison.

7.1. Method

Participants. We recruited forty-four male undergraduates at Northwestern University for a brief study on information seeking in person judgment. Participants were approached while studying in individual cubicles in the university library and were offered a chocolate bar as compensation.

Materials and design. We constructed one description of the target person "Bob" and three standard descriptions, one of the feature-match standard "Adam", and two of the non-feature-match standard "Melissa" — one with a higher-order structure that aligned with that of the target (Bob) and one without

fictitious target person. As a consequence, Study 3 extends the findings establishing the influence of structural similarity in self-other comparisons (Studies 1 and 2) to the realm of other-other comparisons. Importantly, the cognitive processes that underlie both types of comparison are likely to be highly similar (for a more elaborate discussion, see Mussweiler & Strack, 2000a, 2000b).

(see Appendix C). Bob was described as a sophomore at a Midwestern college who was very athletic and highly dedicated to sports — a person for whom "sports are his life". The feature-match standard (Adam) shared many common features with the target person (e.g., gender, disinterest in cultural events) and was also described as very athletic and highly interested in sports. The structure-match standard (Melissa) differed from the target person with respect to all of the provided specific features (e.g., gender, age, occupational status, interests and hobbies). At the same time, however, this latter standard shared an alignable higher-order structure with the target person. In particular, in several statements, Bob and Melissa were both portrayed as willing to make many sacrifices to develop their talent, in either sports or music. This structure interconnects a number of specific features, and therefore should be an important determinant of structural similarity (Clement & Gentner, 2001; Gentner & Toupin, 1986). For half of the participants, this shared higher-order structure was made explicit in the standard by pointing out that "Melissa is very talented and has always tried to develop her skills to the greatest extent, even if this meant that other important activities would be neglected." For the other half, this alignable higher-order structure was not emphasized. Instead, the critical passage was replaced with one that mentioned an important but structurally irrelevant shared feature between Bob and Melissa. For these participants, the description of Melissa indicated that, "... Melissa is a very affectionate person ...". Bob was described as affectionate in that he cares a lot about his girl-friend as well as his friends.

Pretesting had revealed that by itself, this feature (affectionateness) is seen as similarly informative for person judgment as the fact that someone is talented. In the pretest, participants ($N = 39$) were given a brief description of a target person, who was described in similar terms as the target person of the main study. In addition to this brief description, participants received a total of 9 statements about the pretest target. For each of these statements, they indicated on 9-point rating scales (1 = "not at all informative"; 9 = "very informative") how informative each statement would be for evaluations of the pretest target. The two critical statements concerning affectionateness and talent were rated to be similarly informative (affectionate: $M = 7.87$, $SD = 1.64$; talented: $M = 7.64$, $SD = 1.29$; $t(38) < 1$).

Thus, the respective statements that were included in the two descriptions of

Melissa constitute similarly important feature-matches for person evaluation. Despite this similarity, however, they have different structural properties. The statement about Melissa's talent creates an alignable higher-order structure—a structure by which the same connections are shown to hold among the features of Melissa as among the (very different) features of Bob. In contrast, the statement about her affectionateness is an isolated, though salient, match with the information that Bob too is affectionate; it does not introduce an alignable relational structure. By introducing these two alternative statements we were thus able to manipulate structural similarity between the target and the standard and at the same time control for the effects of featural similarity.

In sum, Study 3 is based on a single factor experimental design. The two levels of the factor (alignable structure introduced vs. not introduced) were manipulated between participants.

Procedure. Participants were told that the present study examined what kind of information about others people seek when judging a specific person. To do so, participants would first receive the description of a person named Bob for whom they would later be asked to predict how he is likely to behave in a set of different situations. Participants were instructed to read this description attentively and to form an impression of Bob.

They were then told that to predict Bob's behavior, it may be helpful to consider information about other people. Two additional people would be described to them, and before predicting Bob's behavior, they would have the opportunity to select additional information about one of them. They were instructed to read these descriptions carefully and to form an impression of the described people. For half of the participants the description of Adam was presented prior to that of Melissa; for the other half this order was reversed. Subsequently, participants were informed that they could now request additional information about either of the two standards and that in doing so, they should make sure to select the standard that seemed most relevant for their judgments about Bob. Participants indicated whether they would like to receive additional information about Adam or Melissa and reported to the experimenter, who debriefed them and thanked them.

7.2. Results

We expected that standard selection would be more strongly influenced by

Table 3. Number of Standard Choices by Standard and Alignable Structure (Study 3)

Standard	Alignable Structure	
	Not Introduced	Introduced
Feature-match	15	8
Structure-match	7	14

structural than by featural similarity. If so, the majority of participants should select the structural standard (Melissa) for comparison with Bob, when their shared alignable structure is introduced. When the higher-order structure is not introduced, however, then featural similarity should be the primary determinant of standard selection, and the majority of participants should select Adam.

The results are consistent with these predictions. Table 3 shows the number of choices for the respective standards. As expected, participants tended to select the structure-match standard when the shared alignable structure was introduced. In the absence of shared alignable structure, however, the feature-match standard was selected more frequently. This pattern proved to be significant in a Chi-Square analysis using the number of choices for the respective standards as the dependent variable, $\chi^2(1, N = 44) = 4.46$, $p < .04$, *Cramer's* $V = .32$.

7.3. Discussion

Consistent with the evidence provided by the previous studies, these findings demonstrate that similarity in relational structures plays an important role in the process of selecting a social comparison standard. Participants clearly preferred a high match in individual features over a low match in individual features, as would be predicted by traditional theories of social comparison (e.g., C. T. Miller, 1982; Wheeler, 1966). Yet when given the choice between a high-feature-match standard and a low-feature-match standard that shared higher-order relational structure with the target, participants strongly preferred the structural match.

Importantly, because Study 3 controlled for the effects of similarity in individual features, these findings cannot be explained by assuming that the information we included to introduce a shared alignable structure merely constitutes a powerful feature that guides the selection of a comparison

standard. This is the case because, if considered in isolation and independent from its structural qualities, the informative value of the information we added to highlight the shared alignable structure (i.e., Melissa does everything to develop her talents) was no higher than that of the information we added in the control condition (i.e., Melissa is a very affectionate person). But while the feature "affectionate" appeared in relative isolation, the feature of "possessing talent" was part of a larger relational structure that was also present in the target person. Thus, we suggest that the differential effects of the two alternative pieces of added information stem from their differential structural qualities. Overall, the current findings suggest that standard selection is strongly influenced by the alignment of relational structures — structures that interconnect a number of individual features and thus provide an integrative system for the comparison.

In addition, these findings extend those of the previous studies. First, they demonstrate that structural alignment is important in standard selection not only in self-other comparisons but also when using social comparison to reason about another person. Standard selection in the context of social judgment about another person appears to be guided by structural alignment in much the same way. This suggests that structural alignment may well be a general principle guiding the selection of comparison standards in social judgment — an important link between cognition in the social sphere and cognition in conceptual and perceptual arenas. Furthermore, Study 3 speaks to the potency of structural similarity in standard selection. In this particular study, structural similarity was a stronger determinant of standard selection than a set of quite obvious featural similarities. Thus, structural similarity was a determinant of standard choice even when an alternative determinant was clearly available.

8. General Discussion

In three studies, we tested whether social comparison reflects structure-mapping processes (Gentner & Markman, 1994, 1997; Markman & Gentner, 1993, 1996): specifically, whether the mapping of alignable relational structures influences people's choice of a social comparison standard. Our results bear out the claim that the selection of a comparison standard is strongly

guided by similarity in relational structures: Participants tended to select those others as comparison standards with whom the target shared an alignable relational structure.

Study 1 used a direct priming method to manipulate which structure among different features of self-knowledge is most accessible during standard selection. The results demonstrate that participants select the standard for whom the structure among individual features best matches the structure that had been activated among their own features. Importantly, because structure was manipulated in a content-free manner and standard selection controlled for similarity in a more abstract feature that represents the activated structure, these findings cannot be explained by similarity in specific features. Study 1 thus shows that, as we assume, the structural relations between individual features of self-knowledge influence standard selection.

Study 2 extends these findings by demonstrating specificity. Participants whose self-knowledge had been structured through the same priming task used in Study 1 did not select just any structured standard for comparison. Rather, they selected the standard whose structure matched the specific structure that was induced among their own features. The link between structural alignment and standard selection indeed appears to be specific in nature. Finally, Study 3 further extends these findings in two important ways. First, it demonstrates that structural influences on standard selection are quite potent and can even compensate for very obvious featural dissimilarities.[6] Second, it demonstrates that the structure-selection link is not only influential in the classic social comparison paradigm of self-other comparisons but also in other-other comparisons.

8.1. Limitations

Taken together, these studies provide substantial support for the assumption that alignable relational structure influences standard selection in social

[6] Of course, it will be important in future research to test the limits of this pattern. It stands to reason that some highly salient individual feature matches may be more important than some structural matches: for example, if a potential comparison standard weighs 600 pounds, that will probably diminish goodness of match even if a shared higher-order structure is present.

comparison. At the same time, however, there are also some remaining ambiguities. For one, it could be argued that our manipulations of the structural qualities of self-knowledge may have had their effects not by influencing which shared structure becomes accessible, but rather by activating specific features that are often associated with the higher-order structure. For example, in Studies 1 and 2, priming a structure of inconsistency may also render accessible those specific features that are typically involved in this structure. If this were the case, then standard selections could conceivably have been guided solely by similarities in *features* that are typically associated with a specific structure rather than the structure itself. If, for example, a structure of inconsistency is often associated with one particular inconsistency (e.g., working out regularly and smoking), then priming a structure of inconsistency could also activate this specific inconsistency — and this may in turn guide standard selection. Although our studies cannot completely rule out this possibility, it is important to note that we took many precautions to ensure that standard selections are indeed guided by the activated structural qualities. Particularly, in Studies 1 and 2, we included a control standard which was explicitly characterized by the feature that is most closely associated with the induced structure. In both cases, activating the critical structure did not increase selections for this standard. This suggests that it is indeed the structural commonalities that influenced standard selection.

A second potential ambiguity arises in the context of the specific patterns of standard selections that were obtained across the three studies. In particular, it is clear that not all individual standard selections are completely in line with expectations. This is primarily apparent in Study 2, where — regardless of which structure was primed—participants had a strong preference to select the consistent structure standard for comparison. This pattern of standard selections demonstrates that our structure priming manipulation is not the sole determinant of standard selection. Rather, other factors come into play. For example, people may have a general preference for internal consistency which leads them to select internally consistent others for comparison. Alternatively, a structure of internal consistency may be chronically accessible in participants' self-knowledge so that situational priming of a structure of inconsistency only partly compensates for this chronic accessibility. Whatever the mechanisms that underlie this preference, however, it is important to keep in mind that our

hypotheses pertain to *differences* in the selection of the inconsistent and consistent standards in the two priming conditions. If the primed structure influences standard selection, then participants who were primed with a structure of inconsistency should select more structure inconsistent standards than participants who were primed with a structure of consistency, and the reverse should hold for selections of the consistent standard. This is exactly what we find. Overall, the present results provide support for the assumption that structural similarities influence the selection of social comparison standards.

8.2. Implications

The present studies suggest that the process of standard selection as well as the role similarity plays in this process may be more multifaceted than has previously been assumed. To understand how people select a standard for comparison, one has to differentiate between the different constituents of similarity (e.g., structural vs. featural) and closely examine their specific influence on the selection process. The distinction between similarity on the critical dimension (Festinger, 1954) and similarity on related features (Goethals & Darley, 1977), though clearly important, may not be sufficiently fine grained to capture the dynamics that underlie standard selection. To obtain a more complete understanding of how people select standards in social comparison process, one has to take into account the structural commonalities between the self and a potential comparison standard. Aligning central relational structures appears to play an important role in standard selection.

The influence of structural alignment may influence other aspects of the social comparison process beyond standard selection. Research on structure mapping in similarity has demonstrated that drawing a comparison highlights properties that are connected to a shared alignable structure, and that new inferences are primarily done by projecting properties that are connected to the common structure (Clement & Gentner, 1991; Markman & Gentner, 1993; Wu & Gentner, 1998). This suggests that structural commonalities may have a strong effect on the judgmental consequences of a social comparison.

8.3. Open Questions

The present research is merely a first step towards an understanding of the

role relational structures may play in social comparison processes. The reported studies provide initial evidence suggesting that relational structures play an important role in the standard selection processes. Furthermore, Study 3 begins to explore the relative importance of shared features vs. shared structures. Still, it is clear that many important questions remain to be explored by future research. One question is whether there are specific conditions that favor feature matches versus structure in standard selection.

One line of conjecture here arises from considerations of cognitive effort or load. There is evidence that finding common relational structure requires more cognitive resources than establishing a more superficial similarity on features. For example, using Markman and Gentner's (1993) cross-mapped pairs, Holyoak et al. (1999) found that people given a mapping task normally choose the relational match; but if they are required to carry out a dual task that competes for processing resources, they are highly likely to choose object matches. Similarly, people under time pressure are more likely to focus on similarities in object features whereas people without time pressure are likely to focus on similarities in relational structures (Goldstone & Medin, 1994; Love, Rouder & Wisnewski, 1999). The relative weight of individual features versus relational structures in a similarity comparison thus depends in part on how much cognitive capacity a person is able or willing to invest in a comparison. This suggests that people may be more likely to choose superficially similar comparison standards under conditions of stress of cognition overload. Along these lines, future research will have to further specify the conditions under which common relational structures vs. isolated features carry more weight in the process of selecting social comparison standards.

In addition, the relationship between structures and specific features remains to be explored. Are there specific types of structures that are closely linked to specific features — e.g., inconsistent personalities with artistic temperament? What kinds of basic structural relationships that underlie people's knowledge about themselves and other people? Finally, if the basic framework of structural alignment holds up, then further implications of this framework can be explored: for example, are *differences* between people more salient when they are alignable within a common relational structure? These are only a few examples of the research questions that need to be answered before the role of

relational structures in social comparison processes can be fully appreciated. It was the goal of the present research to take a first step in this research agenda.

Finally, it seems clear that to obtain a complete understanding of the psychological mechanisms that underlie social comparisons, one will have to examine how mechanisms of structural alignment interact with other psychological processes that play an important role in social comparison. For example, recent research has demonstrated that how social comparisons influence self-evaluations critically depends on mechanisms of selective accessibility — a process that guides the activation of self-knowledge during social comparison (Mussweiler, 2003). Future research will have to specify how structural alignment and selective accessibility work together to produce the rich variety of social comparison consequences.

9. Conclusion

For five decades, social comparisons have been a central focus of social psychology. The accumulated research has laid the empirical foundation for understanding with whom we compare and what the psychological consequences of these comparisons are. We have attempted to shed light on the cognitive mechanisms of social comparison by applying our knowledge about comparisons in other contexts to the realm of social comparison (for a similar approach, see Mussweiler, 2001, 2003; Mussweiler & Strack, 2000a, 2000b). Doing so has allowed us to derive novel predictions about the processes that guide the selection of comparison standards and to provide a new perspective on one of the core notions of social comparison theory, namely Festinger's similarity hypothesis.

This research brings out the importance of relational representation and processes in human cognition — not only in purely cognitive processing but also in social cognition. If, as Gentner (2003) has hypothesized, the ability to represent and reason about relational structure is the major distinction between human cognition and that of other intelligent animals, then it stands to reason that social processes would be a prime arena in which we should expect to see such processes in operation (Tomasello and Call, 1997). Further research analyzing social comparisons with respect to the cognitive processes involved will contribute to a more complete understanding of how we compare

ourselves with others.

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Appendix A

No structure standard:

Simone (Simon) is 24 years old and a student. She typically arrives on time for appointments. On television, her favorite programs are about exotic countries. In her spare time she likes to do sports. She has set up her apartment in a cozy way. She gets to the university by tram. After getting home from school, her favorite activity is to drink a nice cup of black tea.

Inconsistent structure standard:

Verena (Tobias) is 23 years old and a student at the University of Würzburg. Although she smokes a lot, she also works out regularly. She wants to finish her studies as soon as possible but she also realizes that she likes to dawdle and to pursue a variety of interests. She cares deeply for the environment. Nevertheless she can't separate from her car.

Inconsistent label standard:

Astrid (Ulrich) is 25 and a student. Her friends think that she has in part a rather contradictory character. Astrid often meets with friends and especially likes to go for dinner with them. It is easy for her to concentrate on her work. Once a month she treats herself to a visit at the hairdresser's. She likes swimming very much, in the lake during summer and in the pool during winter.

Appendix B

Consistent structure standard:

Astrid (Ulrich) is 23 years old and a student. She is open for all kinds of new experiences and is consequently more on the extroverted side. She is creative and imaginative and accordingly a bit chaotic. She is in principle ready to help others and as a consequence very generous with her friends. Another thing worth mentioning is her courage and endurance if she wants to reach a certain goal.

Inconsistent structure standard:

Simon (Simone) is 23 years old and studies at the university. Although Simone is a comradely person, she also has some selfish tendencies. In her studies and beyond she is quite ambitious and hard-working. But there is also a less performance-oriented and more laid-back side to her. She cares a lot for the environment. At the same time, she is does not want to miss conveniences like her car.

Consistent label standard:

Martina (Martin), 24, and also a student, is described as a consistent person by her friends. She is known as a happy person. She is also musically inclined. She has a lot of self-confidence. She is easy going about most things. Martina is a very tolerant person. Martina is also very thrifty. Furthermore, Martina is fairly performance-oriented.

Inconsistent label standard:

Verena (Tobias) is 25 and a student. Her friends think that Verena has in part a rather contradictory character. She is an empathetic person and has various hobbies. Verena is very orderly. She is also an enthusiastic athlete who likes to spend time outside. She has a good sense of humor. Furthermore she is manually skilled.

Appendix C

Target person:

Bob, a 20-year old sophomore at a Midwestern college is tall, and very athletic. While sports are his life, he is especially fond of basketball and takes every chance he gets to go out and play. He can easily spend days perfecting one single shot until it is just right. His coaches have always agreed that Bob is extraordinarily talented and may have a chance to become a professional player. In fact, Bob takes basketball so seriously that his parents are sometimes concerned that his grades may suffer and when they tell him he gets a little worried himself. But as soon as he is out in the court he forgets about those worries. Last quarter, for example, he had to prepare for a very difficult and important exam. Although Bob still had not studied much until the night before

the test, when a friend stopped by and asked him to join him for a game, he was easily persuaded and went along. Naturally, he did not do too well on the exam.

Once, Bob had the rare opportunity to go see Michael Jordan play, which he had always dreamed of. The tickets were extremely expensive, but Bob was so excited to go that he managed to save enough money by cutting down on groceries and not going out for a couple of weeks. He enjoyed the game tremendously! As much as Bob likes to play basketball he also enjoys watching it on TV. He always feels like he learns a lot from watching the best players. Sometimes, however, his girlfriend gets upset with him because he invests almost all of his spare time in practicing and watching basketball. Bob cares a lot about her as well as his other friends. Still, he can never be persuaded to do something "cultural" with them, like going to a concert for example. Because he has never considered himself to be a musical person, he does not really like to go to concerts in general.

Feature-match standard:

Just last year twenty-four year old Adam moved out of his parents' house to live with two of his friends from school. They share a three-bedroom apartment with access to a little backyard. Adam is very happy about the backyard, because it makes living with his dog Max a lot easier. He takes the responsibilities that come with owning a dog very seriously and makes sure that Max gets all the exercise he needs.

Adam is not very tall, but fairly robust and likes sports. If he is not running and playing with his dog, Tennis is his favorite and he likes to practice if there is time left and if he is not too busy with school. Other than that, he enjoys hanging out with his friends. They often play board-games, watch TV or if it is very nice out, they go swimming or do any other outdoor activities like hiking or biking. They always have a good time! Although Adam enjoys being with his friends, he always makes sure that his school-work does not suffer.

Ever since Adam's dad introduced him to the family history and told him about his great-grandparents journey on a ship from Europe, he is very interested in the history of that time period. He really likes reading about it and if he can afford it, travelling to the places that have occupied his mind. By now, you can almost call him a history-expert on that time period. Once, while in

Paris, he was able to combine his interests in history and his love for tennis by going to great museums like the Louvre and seeing the French Open. That was one of his favorite trips! Normally he is not interested in cultural events and rarely goes to plays or concerts. His friends are well aware of this fact and rarely try to convince him to go with them. Recently...

Structure-match standard:

Melissa a 27-years old University-graduate is rather short and a little overweight. She works as a music instructor at a private college and she likes her job very much, since it allows her to be with people of the same interests and to share and pass on her passion for music. Oftentimes, she spends all day practicing the piano—her favorite instrument. (Melissa is very talented and has always tried to develop her skills to the greatest extent, even if this meant that other important activities would be neglected.)

(Because Melissa is a very affectionate person), recently her friends managed to talk her into joining their efforts for an urban garden in their neighborhood. Even though she likes flowers and plants, she never did much gardening and therefore was concerned about her ability to really help. But by now she really enjoys tending to the plants and watching them grow and after all she finds it very rewarding to see the outcome of their labor. Sometimes though, she wishes that it would not take up so much of her time. She would rather like to meet more often with a friend of hers who is a violinist and then play their favorite pieces all night, like they did recently.

In contrast to sports and watching games, which she is not interested in at all, Melissa loves going to concerts and has even season tickets to the Chicago Symphony Orchestra. Occasionally her dislike for sports has caused problems with some of her friends, who complained about the fact that she would never join them at the gym. Melissa, however, has never seen herself as an athletic person and believes that her gardening is enough of an exercise. One day, ...

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